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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/691,141

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Takuji Umezu

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EXAMINER

TRAN, NHAN T

ART UNIT

PAPER NUMBER

2622

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/691,141

Applicant(s)

UMEZU, TAKUJI

Examiner

Nhan T. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 April 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 4/30/2007 have been fully considered but they are not persuasive.

The Applicant argues that Nanjo '315 (Nanjo1) does not disclose "the drive mechanism starts driving in a direction in which the optical filter is inserted into the region when the area of the light-passing aperture is decreased to a predetermined area by the movement of the light-blocking member."

In response, the Examiner understands the Applicant's argument but respectfully disagrees. As clearly disclosed by Nanjo '315 in **col. 9, lines 18-35**, the driving mechanism only starts driving the ND filter into the region **when** the predetermined aperture size  $\alpha$  is reached by the diaphragm blades of aperture 15. Thus, the amended limitations still read on the disclosure of Nanjo '315.

### *Drawings*

The replacement drawings (Figs. 18 – 20) filed 4/30/2007 are accepted.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3-5, 7 & 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Nanjo et al. (US 6,771,315 B1).

Regarding claim 1, Nanjo et al. (hereafter referred as "Nanjo") discloses a light-quantity adjusting apparatus (an exposure adjusting apparatus shown in Figs. 1, 5, 9 & 10; col. 1, lines 6-14; col. 9, lines 18-35 and col. 11, line 66 – col. 12, line 20, wherein light quantity passing through aperture 15 is adjusted by diaphragm blades 2 & 3 and neutral density filter or so called ND filter 17 having filter portions 21a-21d) comprising:

a main body (a body of optical system shown in Fig. 5 where the objective lens, diaphragm blades and ND filter located) in which an opening (an internal opening to allow light passing through the optical system) is formed (see col. 10, lines 58-65 and col. 13, lines 7-11);

a light-blocking member (Figs. 1, 9 & 10, blades 2, 3 or 2A and 3A) moved with respect to the opening (the aperture 15) to change an area of a light-passing aperture (see col. 9, lines 18-35 and col. 13, lines 13-24);

an optical filter (Figs. 1, 9 & 10, ND filter 17 being held by holding member 5 or 5A) moved with respect to the opening to insert and remove with respect to a region opposed (a region in front of the aperture 15) the light-passing aperture (col. 13, lines 13-34 and note Fig. 2(L) for the insertion of the ND filter and Fig. 2(A) for removal of the

ND filter with respect to the region of aperture 15, wherein the ND filter is positioned in front of the aperture 15);

an actuator (motor 25 or 30 shown in Figs. 1 & 9) serving as a drive source (col. 9, lines 4-7 and col. 12, lines 17-20);

a drive mechanism (Figs. 1 & 9) for driving the light-blocking member and the optical filter by drive force from the actuator (col. 13, lines 13-24), wherein the drive mechanism has an operation range (operation range of  $15^\circ$  to approximately  $45^\circ$  of rotational angle along points S, L, M, N, O, P, Q, R, S' as illustrated in Fig. 11 and Figs. 2-3) in which a displacement amount (indicated by stroke amount shown in the vertical axis in Fig. 11) of the optical filter (the ND filter) with respect to the opening is made larger than a displacement amount of the light-blocking member with respect to the opening, while the actuator operates by a predetermined amount (see col. 13, lines 19-34, 50-53, and note the rotational angle of the motor 30 shown in Fig. 11 from  $15^\circ$  to  $45^\circ$  causes the diaphragm blades 2A & 3A to stop during point S to point S' to **maintain an aperture size  $\alpha$** , which can be clearly seen in Figs. 2 & 3, while the ND filter advances into the aperture with filter portions 21a to 21d, one by one. From point S to S', the displacement of the ND filter is clearly larger than the displacement of the diaphragm blades as illustrated by the large linear slope of stroke in Fig. 11 while the displacement of diaphragm blades is zero in this section), and wherein the drive mechanism starts driving in a direction in which the optical filter is inserted into the region when the area of the light-passing aperture is decreased to a predetermined area by the movement of the light-blocking member (col. 9, lines 18-35).

Regarding claim 3, further disclosed by Nanjo, the drive mechanism has a first operation range (operation range of  $15^{\circ}$  to approximately  $45^{\circ}$  of rotational angle corresponding to point S to point S' shown in Fig. 11) in which the displacement amount of the optical filter is made larger than the displacement amount of the light-blocking member (see col. 13, lines 13-34) and a second operation range (operation range from  $0^{\circ}$  to  $15^{\circ}$  of rotational angle corresponding to point A to S in Fig. 11) in which the displacement amount of the optical filter is made smaller than that of the first operation range (Fig. 11 clearly shows that the ND filter movement in the operation range of  $0^{\circ}$  to  $15^{\circ}$  of rotational angle is small compared to the movement from the operation range of  $15^{\circ}$  to approximately  $45^{\circ}$  of rotational angle).

Regarding claim 4, as shown in Figs. 2, 3 & 10 of Nanjo, the drive mechanism drives the optical filter (the ND filter) on an insert side with respect to the opening in the first operation range (see Fig. 2(L)) and drives the optical filter on a remove side (see Fig. 2(A)) in the second operation range.

Regarding claim 5, Nanjo also discloses, in Figs. 9 & 10, the drive mechanism comprising: a first drive member (rotating plate 31), driven by the actuator (motor 30), for driving the light-blocking member (diaphragm blades 2A, 2B); a holding member (5A) holding the optical filter; and a second drive member (plate 5A), connected to the first drive member at a connection portion (connecting pin 35c) and driven by the first

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drive member, for driving the optical filter, wherein, on the connection portion, an interlocking mechanism (cam groove 34) is arranged, the interlocking mechanism includes a cam region (cam groove 34) in which the displacement amount of the optical filter with respect to the opening is made larger than the displacement amount of the light-blocking member with respect to the opening, while the actuator operates by a predetermined amount (see col. 13, lines 13-34. Also note the illustration of Figs. 11, 2 & 3 for a large displacement amount of ND filter in the range between point S and S' as discussed in claim 1).

Regarding claim 7, Nanjo discloses an optical apparatus (image pickup apparatus 50 shown in Fig. 5, col. 10, lines 58-65) comprising:

- a light-quantity adjusting apparatus according to claim 1 (see claim 1 above); and
- an image-taking optical system (optical system of apparatus 50 shown in Fig. 5) including the light-quantity adjusting apparatus (see Figs. 1, 5, 9 & 10; col. 9, lines 18-35; col. 10, lines 58-65 and col. 11, line 65 – col. 12, line 16).

Regarding claim 8, Nanjo also discloses a camera (camera 50 shown in Fig. 5 and col. 10, line 58 – col. 11, line 24) comprising:

- a light-quantity adjusting apparatus according to claim 1 (see claim 1 above);
- an image-taking optical system (optical system of apparatus 50 shown in Fig. 5) including the light- quantity adjusting apparatus (Figs. 1, 9 & 10); and an image pickup element (image sensor made of CCD 52) which photoelectrically converts an object

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image formed by the image-taking optical system into an electric signal (see col. 10, line 58 – col. 11, line 24).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nanjo et al. (US 6,771,315 B1) in view of Nanjo Yusuke (JP 11-064923).

Regarding claim 6, Nanjo '315 discloses that a ND filter portion (21a) inserted into the aperture region first has a width equal to another ND filter portion (21b) inserted into the aperture region second as the ND filter moving upward (see Figs. 2 & 3). Nanjo '315 does not explicitly disclose that, in the optical filter, the width of a portion inserted into the light-passing region first is larger than the width of a portion inserted into the light-passing region second.

As taught by Nanjo '923, an ND filter (22) is made such that its shape is similar to the V shape of the opening portion of a diaphragm blade. Nanjo '923 discloses that the top portion of the ND filter that inserts into the aperture first has a largest width while a portion inserted into the aperture after the top portion has a smaller width in a V-shape like configuration (see Nanjo '923 and Figs. 1-3).



Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical filter (ND filter) in Nanjo '315 to have the width of a portion inserted into the light-passing region first is larger than the width of a portion inserted into the light-passing region second so as to reduce material for making the ND filter, thereby reducing cost of the apparatus.

### ***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NHAN T. TRAN  
Patent Examiner

A handwritten signature in black ink, appearing to read 'David Ometz', with a long horizontal stroke extending to the right.

DAVID OMETZ  
SUPERVISORY PATENT EXAMINER